PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	22.04.2004
Applicant's or agent's file reference: HWKP 2 00008 PCT	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US 03/00847	13.01.2003	15.01.2002

Applicant
HAWK PRECISION COMPONENTS GROUP,INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:	Authorized Officer
European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Micheli, M Tel. +31 70 340-3606

Form PCT/IPEA/416 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HWKP 2 00008 PCT	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US 03/00847	International filing date *(day/month/year)* 13.01.2003	Priority date *(day/month/year)* 15.01.2002
International Patent Classification (IPC) or both national classification and IPC B30B11/02		
Applicant HAWK PRECISION COMPONENTS GROUP,INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
14.08.2003	22.04.2004
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Belibel, C Telephone No. +31 70 340-3215

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US 03/00847

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-15 as originally filed

Claims, Numbers

1-29 received on 11.03.2004 with letter of 09.03.2004

Drawings, Sheets

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-29
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-29
Industrial applicability (IA)	Yes:	Claims	1-29
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:
   D1: DE 40 03 016 A (REITTER ERHARDT) 8 August 1991 (1991-08-08)
   D2: US-A-4 482 307 (HERREN DIETMAR ET AL) 13 November 1984 (1984-11-13) cited in the application
   D3: US-A-2 509 783 (RICHARDSON LLOYD D) 30 May 1950 (1950-05-30)
   D4: US-A-5 551 856 (KATAGIRI TAKESHI) 3 September 1996 (1996-09-03)

2. The document **D1** is regarded as being the closest prior art to the subject-matter of claim **1**, and shows (the references in parentheses applying to this document):
   A tool rig (10) suitable for the compaction of particulate materials, comprising:
   a base(13);a cylinder block(12) disposed on the base (13);
   first and second pistons (14,15)disposed within the cylinder block(12), the second piston (14) being at least partially disposed within the first piston (15); and
   first and second supply means(42',43') for connecting an energy supply to the second piston (14) from positions within the second piston (14) to cause the second piston(14), the first supply means (42') causing the second piston (14) to move in a first direction and the second supply means (43') causing the second piston to move in a second direction opposite the first direction.
   The subject-matter of claim **1** differs from this known tool rig in that the second piston moves independently from movement of the first piston
   The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

3. It is noted that claim **13** comprises all the features of claim **1**. The subject-matter of claim **13** differs from the subject-matter of claim **1** in that "first and second supply means" are named "first and second channels"..
   The subject-matter of claim **1** is new, therefore **the subject-matter of claim 13 is new** (Article 33(2) PCT).

4. It is noted that claim **23** comprises all the features of claim **1**.The subject-matter of

claim **23** differs from the subject-matter of claim **1** in that the tool rig is placed in a press frame.
The subject-matter of claim **1** is new, therefore **the subject-matter of claim 23 is new** (Article 33(2) PCT).

5 Claims **2-12** are dependent on claim **1** and as such also meet the requirements of the PCT with respect to novelty.

6 Claims **14-22** are dependent on claim **13** and as such also meet the requirements of the PCT with respect to novelty.

7 Claims **24-29** are dependent on claim **23** and as such also meet the requirements of the PCT with respect to novelty.

8 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims **1, 13 and 23** does not involve an inventive step in the sense of Article 33(3) PCT.

8.1 The document **D1** is regarded as being the closest prior art to the subject-matter of claim **1**, and shows (the references in parentheses applying to this document):
A tool rig (10) suitable for the compaction of particulate materials, comprising:
a base(13);a cylinder block(12) disposed on the base (13);
first and second pistons (14,15)disposed within the cylinder block(12), the second piston (14) being at least partially disposed within the first piston (15); and
first and second supply means(42',43') for connecting an energy supply to the second piston (14) from positions within the second piston (14) to cause the second piston(14), the first supply means (42') causing the second piston (14) to move in a first direction and the second supply means (43') causing the second piston to move in a second direction opposite the first direction.
The subject-matter of claim **1** differs from this known tool rig in that the second piston moves independently from movement of the first piston

8.2 The problem to be solved by the present invention may therefore be regarded as to balance the different degrees of compression of the pistons by controlling the motion of part of the tool rig.

8.3 The solution proposed in claim **1** of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
These features have already been employed for the same purpose in a similar tool rig for the compaction of particulate materials, see document D2, page column 1, lines 50-53; column 2 lines 38-41). It would be obvious to the person skilled in the art, namely when the same result is to be achieved, to apply these features with corresponding effect to a tool rig according to document D1, thereby arriving at a tool rig according to claim 1.
Therefore the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

8.4 It is noted that claim **13** comprises all the features of claim **1**. The subject-matter of claim **13** differs from the subject-matter of claim **1** in that "first and second supply means" are named "first and second channels".
Therefore the subject-matter of claim 13 does not involve an inventive step.

8.5 It is noted that claim **23** comprises all the features of claim **1**.The subject-matter of claim **23** differs from the subject-matter of claim **1** in that the tool rig is placed in a press frame.
Therefore the subject-matter of claim 23 does not involve an inventive step.

9 Dependent claims **2-12, 14-22, 24-29** do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, see documents D1, D2, D3 and D4 and the corresponding passages cited in the search report.

Having thus described the invention, what is claimed is:

1. A tool rig for the compaction of particulate materials, comprising:

a base;

a cylinder block disposed on the base;

first and second pistons disposed within the cylinder block, the second piston being at least partially disposed within the first piston; and

first and second supply means for connecting an energy supply to the second piston from positions within the second piston to cause the second piston to move independently from movement of the first piston, the first supply means causing the second piston to move in a first direction and the second supply means causing the second piston to move in a second direction opposite the first direction.

2. The tool rig of claim 1, wherein the first and second supply means respectively include first and second channels defined by a supply component at least partially disposed within the second piston.

3. The tool rig of claim 2, wherein the supply component is stationary relative to the base.

4. The tool rig of claim 2, wherein the first and second channels extend through the base.

5 The tool rig of claim 2, wherein the supply component defines a central bore.

6. The tool rig of claim 5, further comprising

a third piston disposed within the central bore; and

third supply means for connecting an energy supply to the third piston from a position within the second piston to cause the third piston to move independently from movement of the first and second pistons.

7. The tool rig of claim 1, wherein the first and second pistons are concentric.

8. The tool rig of claim 1, further comprising at least two connecting lateral pistons at least partially contained within the cylinder block, to connect at least one platen to the cylinder block.

9. The tool rig of claim 1, further comprising at least one linear encoder disposed in the base.

10. The tool rig of claim 1, further comprising a mechanical stop for at least one of the pistons.

11. The tool rig of claim 10, wherein the mechanical stop is adjustable.

12. The tool rig of claim 11, wherein the mechanical stop includes an inner ring with an external thread that connects to an internal thread of an outer ring, whereby the stop is adjusted by rotation of the outer ring.

13. A tool rig for the compaction of particulate materials, comprising:

a base;

a cylinder block disposed on the base;

first and second pistons disposed within the cylinder block, the second piston being at least partially disposed within the first piston; and

a supply component disposed in the second piston, the supply component defining first and second channels providing an energy supply causing the second piston to move independently from movement of the first piston, the first channel providing an energy supply causing the second piston to move in a first direction and the second channel providing an energy supply causing the second piston to move in a second direction opposite the first direction.

14. The tool rig of claim 13, wherein the first and second pistons are on essentially the same level.

15. The tool rig of claim 13, further comprising a third piston, wherein two of the three pistons are on essentially the same level and one of the three pistons is on a different level from the two pistons that are on essentially the same level.

16. The tool rig of claim 13, wherein the supply component defines a central bore.

17. The tool rig of claim 16, further comprising a third piston disposed within the central bore.

18. The tool rig of claim 17, further comprising supply means for connecting an energy supply to the third piston from a position within the second piston to cause the third piston to move independently from movement of the first and second pistons.

19. The tool rig of claim 13, further comprising at least one linear encoder disposed in the base.

20. The tool rig of claim 13, further comprising a mechanical stop for at least one of the pistons.

21. The tool rig of claim 20, wherein the mechanical stop is adjustable.

22. The tool rig of claim 21, wherein the mechanical stop includes an inner ring and an outer ring, whereby the stop is adjusted by rotation of the outer ring.

23. A press for the compaction of particulate materials, comprising:

a frame; and

a tool rig for the compaction of particulate materials connected to the frame, including a base, a cylinder block disposed on the base, first and second pistons disposed within the cylinder block, the second piston being at least partially disposed within the first piston, and first and second supply means for connecting an energy supply to the second piston from positions within the second piston to cause the second piston to move independently from movement of the first piston, the first supply means causing the second piston to move in a first direction and the second supply means causing the second piston to move in a second direction opposite the first direction.

24. The press for the compaction of particulate materials of claim 23, wherein the first and second supply means respectively include first and second channels defined by a supply component at least partially disposed within the second piston.

25. The press for the compaction of particulate materials of claim 23, wherein the tool rig is integrally connected to the frame.

26. The press for the compaction of particulate materials of claim 23, wherein the tool rig is removably connected to the frame.

27. The press for the compaction of particulate materials of claim 23, further comprising electric controls.

28. The press for the compaction of particulate materials of claim 23, further comprising hydraulic controls.

29. The press for the compaction of particulate materials of claim 23, further comprising pneumatic controls.